

REMARKS

In the Final Office Action, Examiner Cattungal rejected pending claims 1-20 on various grounds. The Applicant responds to each rejection as subsequently recited herein, and respectfully requests reconsideration of the present application:

A. Examiner Cattungal rejected claims 1-20 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Publication No. 2005/0107688 to *Strommer* et al.

The Applicant has thoroughly considered Examiner Cattungal's remarks concerning the patentability of claims 1-20 over *Strommer*. The Applicant has also thoroughly read *Strommer*. To warrant this §102(e) rejection of claims 1-20, each and every element as set forth in the independent claims 1, 5 and 13 must be either expressly or inherently described in *Strommer*. See, MPEP §2131. The Applicant respectfully traverses this §102(e) rejection of independent claims 1, 5 and 13, because *Strommer* fails to describe, expressly or inherently, the following limitation of independent claims 1, 5 and 13:

1. “a data-processing unit that is arranged to sort a further local image of the vessel into the sequence that is stored in the memory, the sorting being based on similarities between in the further local image and one or more of the local images of the sequence” as recited in independent claim 1;
2. “sorting a further local image, which is made by the sensor probe, into the sequence” and “positioning a medical device coupled to the catheter based at least in part on the sorted further local image” as recited in independent claim 5; and
3. “sorting the further local image into the sequence based on a similarity between the further local image and one or more of the local images of the

sequence" and "positioning the medical device coupled to the catheter based at least in part on the sorted further local image" as recited in independent claim 13.

As to the traversal, a careful review of *Strommer* reveals *Strommer* teaches delivering a stent (i.e., a medical device as recited in claims 5-20 herein) to a selected position within a lumen (i.e., vessel as recited in claims 1-20 herein) by a graphic designation on an image of the lumen of (1) a selected position of the stent within the lumen and (2) an indication when the stent has reached the selected position. This is accomplished by use of a medical positioning system ("MPS") constantly detecting the position of the stent relative to the selected position as represented on the image of the lumen. For example as shown in FIG. 6 of *Strommer*, a MPS sensor 210₁ is attached to a catheter 222 delivering the stent, a MPS sensor 210₂ is attached to a transducer 218, a MPS sensor 210₃ is attached to an operating table, and a MPS sensor 210_N is attached to a patient 216 to thereby constantly detect the position of the stent relative to the selected position. See, Strommer at paragraphs [0058] and [0110]-[0116].

Further review of *Strommer* reveals the fact that the only image sorting activity taught by *Strommer* is for purposes of reconstructing a three-dimensional ("3D") image of a volume from a sequence of two-dimensional ("2D") images derived from a transducer moving within the lumen and from the 3D location and orientation of the sequence of 2D images obtained from the MPS sensors. Specifically, as shown in FIG. 9, *Strommer* teaches an internal transducer 254 (FIG. 7A) for capturing a sequence of 2D images 252A-252S as transducer 254 is moved within a lumen and detected via MPS sensors 258 and 260 (FIG. 7A). The capturing of these 2D images 252A-252S are synchronized with an organ timing signal 272. To reconstruct a 3D image of a volume, the sequence of 2D images 252A-252S is sorted into volumes 274A-274D as shown in FIG. 10A based on the synchronized timing position of each 2D image relative to an organ timing signal 272. The timing position of each 2D image is either organ timing signal cycle location T, 1/4T, 1/2T or 3/4T. As shown in FIGS. 10B and 10C, this sorting serves as the basis for the reconstruction and updating of 3D volumes 276 in view of the 3D location and orientation

of each 2D image 252 obtained from the MPS sensors 258 and 260. See, Strommer at paragraphs [0128]-[0149].

In the context of properly understanding the only sorting activity of *Strommer*, the Applicant respectfully asserts that *Strommer* unequivocally fails to describe, expressly or inherently, sorting a further 2D image into the sequence of 2D images 252A-252S, particularly based on one or more similarities between the further 2D image and one or more of the 2D images 252A-252S. Furthermore, the Applicant respectfully asserts that *Strommer* unequivocally fails to describe, expressly or inherently, positioning a stent within a lumen based entirely or partially on the sorting of the further 2D image into the sequence of 2D images 252A-252S. The reason for these description failures by *Strommer* is *Strommer* is based on using MPS sensors for detecting the position of the stent within the lumen as opposed to sorting further 2D images of the lumen into a sequence of 2D images for positioning the stent within the lumen as encompassed by the aforementioned limitations of independent claims 1, 5 and 13.

Withdrawal of the rejection of independent claims 1, 5 and 13 under 35 U.S.C. §102(e) as being anticipated by *Strommer* is therefore respectfully requested.

Claims 2-4 depend from independent claim 1. Therefore, dependent claims 2-4 include all of the elements and limitations of independent claim 1. It is therefore respectfully submitted by the Applicant that dependent claims 2-4 are allowable over *Strommer* for at least the same reason as set forth herein with respect to independent claim 1 being allowable over *Strommer*. Withdrawal of the rejection of dependent claims 2-4 under 35 U.S.C. §102(e) as being anticipated by *Strommer* is therefore respectfully requested.

Claims 6-12 depend from independent claim 5. Therefore, dependent claims 6-12 include all of the elements and limitations of independent claim 5. It is therefore respectfully submitted by the Applicant that dependent claims 6-12 are allowable over *Strommer* for at least the same reason as set forth herein with respect to independent claim 5 being allowable over *Strommer*. Withdrawal of the rejection of dependent claims 6-12 under 35 U.S.C. §102(e) as being anticipated by *Strommer* is therefore respectfully requested.

Claims 14-20 depend from independent claim 13. Therefore, dependent claims 14-20 include all of the elements and limitations of independent claim 13. It is therefore respectfully submitted by the Applicant that dependent claims 14-20 are allowable over *Strommer* for at least the same reason as set forth herein with respect to independent claim 13 being allowable over *Strommer*. Withdrawal of the rejection of dependent claims 14-20 under 35 U.S.C. §102(e) as being anticipated by *Strommer* is therefore respectfully requested.

B. Examiner Cattungal rejected claims 1-20 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2003/0199767 to *Cespedes* et al. in view of U.S. Patent Publication 2005/0107688 to *Strommer* et al.

The Applicant has thoroughly considered the Examiner Cattungal's remarks concerning the patentability of claims 1-20 over *Cespedes* in view of *Strommer* (collectively the "cited references"). The Applicant has also thoroughly read the cited references. To warrant this §103(a) rejection of claims 1-20, each and every element as combined in independent claims 1, 5 and 13 must have been obvious to one skilled in the art at the time of the invention of independent claims 1, 5 and 13 based on a reading of the cited references. See, MPEP §2141. The Applicant respectfully asserts that a careful review of the cited references reveals the fact that the cited references fail to render obvious the following limitation of independent claims 1, 5 and 13:

1. "a data-processing unit that is arranged to sort a further local image of the vessel into the sequence that is stored in the memory, the sorting being based on similarities between in the further local image and one or more of the local images of the sequence" as recited in independent claim 1;

2. “sorting a further local image, which is made by the sensor probe, into the sequence” and “positioning a medical device coupled to the catheter based at least in part on the sorted further local image” as recited in independent claim 5; and

3. “sorting the further local image into the sequence based on a similarity between the further local image and one or more of the local images of the sequence” and “positioning the medical device coupled to the catheter based at least in part on the sorted further local image” as recited in independent claim 13.

Specifically, *Cespedes* fails to teach or suggest the aforementioned limitations of independent claims 1, 5 and 13 as recognized by Examiner Cattungal, and the Applicant has clearly demonstrated herein the failure of *Strommer* to teach or suggest the aforementioned limitations of independent claim 1, 5 and 13. Thus, from a proper reading of the cited references, the Applicant respectfully asserts that one skilled in the art at the time of the invention of independent claims 1, 5 and 13 would have read the cited references in combination as teaching at best a modification of image-temperature correlation system of *Cespedes* to include the 3D image reconstruction technique of *Strommer* based on using MPS sensors for detecting the position of the stent within the lumen. Moreover, the Applicant respectfully asserts that any deviation from the MPS sensor based 3D image reconstruction technique of *Strommer* in the direction of sorting further 2D images of the lumen into a sequence of 2D images for positioning the stent within the lumen, particularly based on similarities of the images, would improperly change the principle operation of the image-temperature correlation system *Cespedes* in view of *Strommer*. Thus, the cited references in combination would not rendered independent claims 1, 5 and 13 obvious to one skilled in the art at the time of the invention of independent claims 1, 5 and 13.

Withdrawal of the rejection of independent claims 1, 5 and 13 under 35 U.S.C. §103(a) as being unpatentable over *Cespedes* in view of *Strommer* is therefore respectfully requested.

Claims 2-4 depend from independent claim 1. Therefore, dependent claims 2-4 include all of the elements and limitations of independent claim 1. It is therefore respectfully submitted by the Applicant that dependent claims 2-4 are allowable over *Cespedes* in view of *Strommer* for at least the same reason as set forth herein with respect to independent claim 1 being allowable over *Cespedes* in view of *Strommer*. Withdrawal of the rejection of dependent claims 2-4 under 35 U.S.C. §103(a) as being unpatentable over *Cespedes* in view of *Strommer* is therefore respectfully requested.

Claims 6-12 depend from independent claim 5. Therefore, dependent claims 6-12 include all of the elements and limitations of independent claim 5. It is therefore respectfully submitted by the Applicant that dependent claims 6-12 are allowable over *Cespedes* in view of *Strommer* for at least the same reason as set forth herein with respect to independent claim 5 being allowable over *Cespedes* in view of *Strommer*. Withdrawal of the rejection of dependent claims 6-12 under 35 U.S.C. §103(a) as being unpatentable over *Cespedes* in view of *Strommer* is therefore respectfully requested.

Claims 14-20 depend from independent claim 13. Therefore, dependent claims 14-20 include all of the elements and limitations of independent claim 13. It is therefore respectfully submitted by the Applicant that dependent claims 14-20 are allowable over *Cespedes* in view of *Strommer* for at least the same reason as set forth herein with respect to independent claim 13 being allowable over *Cespedes* in view of *Strommer*. Withdrawal of the rejection of dependent claims 14-20 under 35 U.S.C. §103(a) as being unpatentable over *Cespedes* in view of *Strommer* is therefore respectfully requested.

SUMMARY

The Applicant respectfully submits that claims 1-20 as listed herein fully satisfy the requirements of 35 U.S.C. §§102, 103 and 112. In view of the foregoing, favorable consideration and early passage to issue of the present application is respectfully requested. If any points remain in issue that may best be resolved through a personal or telephonic interview, Examiner Cattungal is respectfully requested to contact the undersigned at the telephone number listed below.

Dated: November 15, 2008

Respectfully submitted,
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